SEMESTER EXAMINATION, APRIL-MAY, 2025

Course Name: -B.Tech CSE **Semester: - VI**

Paper Name: - Neural Network & Deep Learning **Paper Code: -TCS 604**

Time – 3 Hrs + 20 minutes per hour extra time for V.I. & examinees with writer. **Max Marks-70**

Instructions:

- The question paper consists of three sections namely A, B, C. All sections are compulsory.
- Section A- Each question carries **3 marks. All questions are compulsory.**
- Section B- Answer any **5 out of 7** given questions in maximum one hundred fifty (150) words. Each question carries **7 marks.**
- Section C- Answer any **2 out of 3** given questions in maximum three hundred (300) words. Each question carries **10 marks.**

Section – A
Objective Questions

1. Answer all the following questions. **5x3 =15**

(i) What is a Boltzmann machine?
a) A feedback network with hidden units
b) A feedback network with hidden units and probabilistic update
c) A feed forward network with hidden units
d) A feed forward network with hidden units and probabilistic update

(ii) What are pros of neural networks over computers?
a) they have ability to learn b examples
b) they have real time high computational rates
c) they have more tolerance
d) all of the mentioned

(iii) What is an activation value?
a) weighted sum of inputs
b) threshold value
c) main input to neuron
d) none of the mentioned

(iv) The process of adjusting the weight is known as?
a) activation
b) synchronisation
c) learning
d) none of the mentioned

(v) How can output be updated in neural network?
a) synchronously
b) asynchronously
c) both synchronously & asynchronously
d) none of the mentioned

Scanned with OKEN Scanner

Section – B
Short Answer Questions

2. Answer any five of the following questions in maximum 150 words. **5x7=35**

i. Describe various paradigm of learning problems with examples. Name two algorithms of semi-supervised learning.

ii. What is multi layered neural network? Explain Activation function and its types.

iii. What is Artificial Neural Network? Explain structure of an ANN.

iv. Elaborate Markov Networks in detail. What is Entropy in machine learning?

v. Explain POS tagging with example. Describe the procedure to train the neural network.

vi. Explain deep learning. What are the various types of deep learning models?

vii. Explain HMM. Describe probabilistic neural networks with example.

Section – C
Descriptive Questions

3. Answer any two of the following question in maximum 300 words. **2x10=20**

i) Explain Hopfield Networks, Boltzmann machine and Deep learning networks with example. What are the applications of Hopfield Networks, Boltzmann machine and Deep neural networks?

ii) Write short note on:
(a) Sparse Coding
(b) Object Recognition
(c) NLP
(d) Autoencoders
(e) Computer Vision

iii) Explain three Deep Learning tools. Describe key features and limitations of respective learning tools.

SEMESTER END EXAMINATION, APRIL-MAY, 2025
Mid-Test

Course Name: B.Tech (CSE) **Semester: IV**
Paper Name: Neural Network & Deep Learning **Paper Code: TCS 604**
Time - 30 minutes **Max Marks-20**

All questions are compulsory. **10x2 =20**
Objective Questions

(i) What are the requirements of learning laws?
a) learning should be able to capture more & more patterns
b) learning should be able to grasp complex nonlinear mappings
c) convergence of weights
d) all of the mentioned

Scanned with OKEN Scanner

(ii) Which of the following is/are Limitations of deep learning?
a) Data labelling
b) Obtain huge training datasets
c) Both A and B
d) None of the above

(iii) In which of the following applications can we use deep learning to solve the problem?
a) Protein structure prediction
b) Prediction of chemical reactions
c) Detection of exotic particles
d) All of the above

(iv) Which is the most direct application of neural networks?
a) vector quantization
b) pattern mapping
c) pattern classification
d) control applications

(v) which of the following is false?
a) neural networks are artificial copy of the human brain
b) neural networks have high computational rates than conventional computers
c) neural networks learn by examples
d) none of the mentioned

(vi) What is true regarding backpropagation rule?
a) it is also called generalized delta rule
b) error in output is propagated backwards only to determine weight updates
c) there is no feedback of signal at nay stage
d) all of the mentioned

(vii) Associative memory, if used in feedback structure of Hopfield type can function as?
a) data memory
b) cluster
c) content addressable memory
d) none of the mentioned

(viii) What is reinforcement learning?
a) learning is based on evaluative signal
b) learning is based o desired output for an input
c) learning is based on both desired output & evaluative signal
d) none of the mentioned

(ix) What is Hopfield model?
a) fully connected feedback network
b) fully connected feedback network with symmetric weights
c) fully connected feedforward network
d) fully connected feedback network with symmetric weights

(x) Which of the following would have a constant input in each epoch of training a Deep Learning model?
a) Weight between input and hidden layer
b) Weight between hidden and output layer
c) Activation function of output layer
d) Biases of all hidden layer neurons

****

Scanned with OKEN Scanner